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## C-A OPERATIONS PROCEDURES MANUAL

### 13.23 OJT Document – Monitor Confined Space Atmosphere Using RKI-GX 2001 Gas Monitor

(C-A-ESSHQ Group Procedure C-A-ESSHQ-003)

Note: This document was formerly a C-A Group Procedure. The content of the group procedure was reviewed by the Technical Supervisor. All approvals and/or issue dates of the original group procedure are maintained for present use.

#### Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
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Approved: Signature on File  
Collider-Accelerator Department Chairman      Date

P. Cirnigliaro

ESSHQ Group Procedure C-A-ESSHQ-003  
Original Issue Date: 02/20/04  
Revision 01

## On the Job Training (OJT)

### Task Description: Monitor confined space atmosphere using RKI-GX 2001 Gas Monitor

#### OJT DEMONSTRATION GUIDE

The following guide is to be used by an Evaluator/OJT Trainer when demonstrating this task to a candidate.

Description of Performance Item	Acceptance Criteria
Select appropriate atmospheric sampling equipment.	RKI-GX2001 Gas Monitor
Identify the types of hazards present.	Sources of Information <ol style="list-style-type: none"> <li>1. Confined Space Permit.</li> <li>2. Owner of Space.</li> <li>3. Person performing work within the space.</li> </ol>
Determine whether instrument is capable of sampling identified hazards.	<ol style="list-style-type: none"> <li>1. Discuss interfering compounds.</li> <li>2. Discuss response factors for chemicals.</li> </ol>
Obtain RKI GX2001 Gas Monitor.	<ol style="list-style-type: none"> <li>1. Verify calibration Date.</li> <li>2. Verify all equipment is present.</li> <li>3. Identify limitations of the gas monitor.</li> </ol>
Perform equipment Start up.	<ol style="list-style-type: none"> <li>1. Press and hold the Mode/Power button for one second to turn on the GX-2001 and activate its LCD. The alarm lights flash, the buzzer sounds, and the vibrator vibrates.</li> <li>2. The GX-2001 tests all elements of the LCD, then displays the year, month, day, and time before displaying the battery voltage. The buzzer sounds again after the batter voltage is displayed. <b>Caution</b> If the battery level is low or if the battery icon is flashing and the unit's buzzer sounds, recharge the unit.</li> <li>3. The four gas sensors inside the GX-2001 begin working, and the concentrations of the target gasses are displayed on the LCD in the following order: O<sub>2</sub>, H<sub>2</sub>S, CO, and HC. The GX-2001 is now in the measuring mode. O<sub>2</sub> is displayed in (%), H<sub>2</sub>S and CO as ppm, and HC as percentage of the lower explosive limit (%LEL).</li> </ol>

Description of Performance Item	Acceptance Criteria
Perform Demand Zero to ensure accurate gas readings in the monitoring environment.	<ol style="list-style-type: none"> <li>1. Find a fresh air environment. This is an environment free of toxic or combustible gasses and of normal oxygen content (20.9%).</li> <li>2. With the unit on and in the measuring mode, press and hold the AIR button for about three seconds to allow the GX-2001 to set the zero reading for HC, CO, and H<sub>2</sub>S and to set the span for O<sub>2</sub>. While you are pressing the AIR button, the LCD displays "HOLD", a prompt for you to keep pressing the AIR button.</li> <li>3. When the zero reading has been set, the LCD displays "Adj", which prompts you to release the AIR button.</li> </ol>
Perform oxygen sensor test	You can test the oxygen sensor and alarm circuit by exhaling into the oxygen sensor. When the LCD reading falls below the alarm point for oxygen, the buzzer will sound, the vibrator will activate, the LCD reading for oxygen will flash, and the alarm lights will turn on. To check other gas sensors contact CA ESHQ.
Reset GX2001 alarm.	To reset an alarm, press the MODE/POWER button after the gas reading falls below the alarm point (or above for oxygen). If a TWA alarm has been activated, it cannot be reset unless you turn off the unit.
Turning off the GX2001.	<ol style="list-style-type: none"> <li>1. Press and hold the MODE/Power Button for about five seconds to turn off unit.</li> <li>2. The buzzer will sound and the LCD backlight will flash.</li> <li>3. Release the button when the LCD is Blank. The unit is off.</li> </ol>
Gain access to confined space entry point.	<b>DO NOT PHYSICALLY ENTER THE SPACE</b> <ol style="list-style-type: none"> <li>1. Ensure that you are not breathing atmosphere from within the space.</li> </ol>
Initiate atmosphere monitoring.	<ol style="list-style-type: none"> <li>1. Insert sample hose or meter into space.</li> <li>2. Real time gas display should indicate values.</li> <li>3. Allow adequate time for response time.</li> </ol>
Fully Characterize atmospheric hazards within space.	<ol style="list-style-type: none"> <li>1. Obtain samples at bottom, middle and top.</li> <li>2. Discuss potential for pockets of gases.</li> <li>3. Attempt to locate pockets of gases.</li> <li>4. Discuss potential for low ventilation.</li> <li>5. Discuss need to know where work will be performed to ensure occupied area is sampled.</li> </ol>
Determine acceptable atmospheric condition.	<ol style="list-style-type: none"> <li>1. O<sub>2</sub> must be &gt; 19.5% and &lt; 23.5%</li> <li>2. LEL &lt; 10%</li> <li>3. CO &lt; 25ppm</li> <li>4. H<sub>2</sub>S &lt; 5ppm</li> </ol>

<b>Description of Performance Item</b>	<b>Acceptance Criteria</b>
<b>Identify necessary actions based on atmosphere</b>	
Case 1 Atmosphere is within acceptable levels, no additional hazards from operations, job of short duration (<2 hours).	Continuous monitoring not required.
<b>Identify necessary actions based on atmosphere</b>	
Case 2 Atmosphere is within acceptable levels, no additional hazards from operations, job of extended duration (> 2hours) or space not continuously attended.	Periodic monitoring (1-2 hours) or prior to each entry.
<b>Identify necessary actions based on atmosphere</b>	
Case 3 Atmosphere is within acceptable levels, additional atmospheric hazards introduced in work within the space from the work process.	Continuous monitoring throughout the entry.
<b>Identify necessary actions based on atmosphere</b>	
Case 4 Atmosphere is within acceptable levels only due to engineering controls (ventilation).	Continuous monitoring throughout the entry.
Document results of survey.	<ol style="list-style-type: none"> <li>1. Use Confined Space Certificate, copy to remain with work group.</li> <li>2. Use Confined Space Permit, copy to remain with work group, copy of completed form to ESH Coordinator.</li> </ol>

## OJT DEMONSTRATION GUIDE for RKI-GX 2001 PERFORMANCE MEASURE

Candidates Name: \_\_\_\_\_ Life No. \_\_\_\_\_ Date: \_\_\_\_\_

Evaluator/OJT Instructor: \_\_\_\_\_ Life No. \_\_\_\_\_ Date: \_\_\_\_\_

I certify that each step of the OJT Demonstration Guide has been demonstrated or discussed with the above candidate.

\_\_\_\_\_  
Evaluator/OJT Instructor's Signature

\_\_\_\_\_  
Date

### **TASK PERFORMANCE EVALUATION for RKI-GX 2001**

Using the list below, a designated Evaluator/OJT Trainer must document satisfactory performance of each step of this task prior to the above named candidate receiving authorization to perform this task.

STEPS TO BE EVALUATED	EVALUATOR INITIAL IF SATISFACTORY
Identify the type of atmosphere measurements and location for collecting measurement.	
Select, locate, and obtain direct reading atmosphere testing device capable of measuring the desired parameters (RKI GX 2001).	
Identify the functions and limitations of the RKI GX 2001.	
Verify all equipment is present.	
Perform equipment Start-up.	
Perform Demand Zero.	
Perform Bump-check of unit.	
Reset Alarms.	
Select and don personal protective equipment.	
Insert probe into confined space to obtain adequate sample.	
Use proper techniques to obtain measurements.	
Determine acceptable atmosphere conditions and establish monitoring frequency for entry into the confined space.	
Document results of the confined space atmosphere testing.	
Disseminate results of confined space atmosphere testing.	

I certify the above named candidate has satisfactorily performed each of the above listed steps without assistance and is capable of performing this task unsupervised.

\_\_\_\_\_  
OJT Instructor's signature

\_\_\_\_\_  
Date

I accept the responsibility for performing this task as demonstrated with this Job Performance Measurement (JPM).

\_\_\_\_\_  
Candidate's signature

\_\_\_\_\_  
Date

Maintain completed copy on file and submit a copy to the CA Training Manager.